

quently found which are variations from the parent variety in color, may it not be equally true that unobserved variations of qualitative character are also occurring, which concern tonnage, ratooning power, disease and insect and drouth resistance? No doubt this is true. Strains of Cristalina are known to exist which differ from one another in stature, diameter of cane, and consequently in yielding power. Cane fields, even though carefully planted to a single variety, may indeed comprise more

than one strain, and if these strains differ in season of maturity, sucrose content of juice and other important economic characters, the result may well be a considerable lessening of financial return to the colono.

In these facts and conditions we have the strongest indications of the necessity for intensive study of cane varieties *as they now exist*, in regard to these unseen, qualitative characters, which are to be detected only by chemical analyses and experimental tests.

HYBRID TYPES OF THE HUMAN RACE

Racial Mixture as a Cause of Conspicuous Morphological Changes of the Facial-type

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IT HAS been possible for recent hereditary research to show that some racial qualities are inherited according to Mendel's law. In 1913, Eugene Fischer,¹ the anthropologist, made a close study of questions of this kind and laid a scientific foundation for hybrid research in the human world.

The morphological race-characters, which are formed through an early and complete ossification—for instance the form, the length, the breadth of the skull etc.—seem to be depending upon heredity in a higher degree than, for instance, the length of the body, which is more easily modified by environmental factors, which depend upon an ossification completed at a later period. I have treated this latter question in a recent communication.²

During my travels and investigations in the far north of Sweden, among the population there, which has originated through strong race-mingling among Lapps, Finns and Swedes principally, I could not help noticing that the types vary in a very high degree, and that

not unfrequently certain obvious changes of the facial type appear, which do not appear among individuals of a purer race. The numerous recombinations of the genetic structure are probably important causes for this circumstance. There will spring up, it seems to me, in these racial hybrids, besides qualities depending solely on the germ-plasm, in many respects stronger modifications, which probably are to be considered as a partial atrophy. Similar phenomena are often observed in crossings in the vegetable and the animal world/

RESULTS OF RACE CROSSING

Among more conspicuous and comparatively frequently appearing divergences of the morphological structure of a mixed-race population of this kind (if not always in the first generation, then in the subsequent ones) are to be mentioned an increase of bodily length a stronger and more graceful body formation than is found in the parental races, a narrower and more elongated

¹ E. Fischer, *Die Rehobother Bastards und das Bastardierungsproblem beim Menschen*. Jena 1913.

² H. Lundborg, *Rassenmischung-vermehrte Heterozygotic (Genchaos)-Konstitutionsveränderungen—Habitus asthenicus sive paralyticus (Zunahme der Körpergrösse usw.)—Tuberkulose. Eine Ursachenenvette*. Hereditas, Bd. II. Lund 1921.

Ludwig
Victor,
Archduke of
Austria,
Emperor
Franz
Joseph's
brother.



Dmitri
Constantino-
vitch,
Grandduke
of Russia.



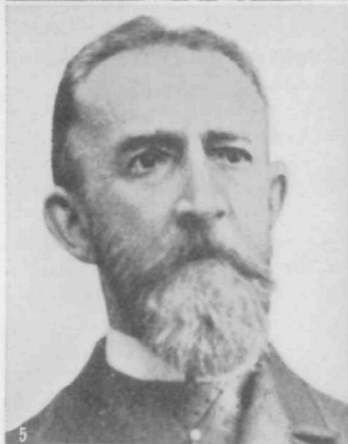
Queen
Kristina of
Sweden,
daughter of
Gustavus
Adolphus.



Zarevna
Marie-
Louise of
Bulgaria, nee
Princess of
Bourbon-
Parma.



Hans,
Prince of
Schleswig-
Holstein-
Glücksburg.



Vilhelm,
Prince of
Sweden.



RACIAL MIXTURE IN ROYAL FAMILIES

Racial mixture has taken place in all the royal families of Europe. One of the effects of this hybridization seems to be "a narrower and more elongated face" than that possessed by either of the parental races. It does not always occur in the first generation, however. The illustration shows some members of different royal families. (Fig. 28.)

face, especially in its upper part. It is to this latter phenomenon that I wish to draw attention in the following discussion. Judging from circumstances, it occurs in a certain percent among race-mixed human elements everywhere in the world, among socially and economically well situated people, as well as among poor and destitute individuals. At least, I have observed it in different parts of Sweden in crossings between Swedes of the Nordic race type and individuals of other nationalities and races, such as Jews, Walloons, Gipsies, and so on. In the European royal families one very often observes this phenomenon in a great many members, which is quite a natural thing, as more or less strong racial mixture has taken place in all these families. A superficial look at the numerous portraits occurring in Wrangel's great work "The Sovereign Royal Families of Europe" (*Les Maisons souveraines de l'Europe*, Stockholm 1898) will clearly show this.

The photographs in Fig. 28 are representative. It certainly is no chance that these long-drawn facial types most frequently are to be found in the Russian and Austrian royal families with their heterogeneous blood-mixture. Nor is it astonishing, that all the three kings of the Scandinavian empires, all nearly related to one another, are, like several of their near relatives, especially tall people with rather long faces, and they surpass the Swedes in general, who, nevertheless, belong to the tallest nationalities in the world. The stronger race-mingling in the royal families is most certainly the cause. Also in other countries and continents renowned investigators have observed the phenomenon in question.

Hagen³ has, as far as I know, first of all been struck by the same among East-Asiatic and Melanesian peoples. He has by exact measurements confirmed his statements that the race-hybrids have longer and narrower faces

than both the parental races. Thus there is no doubt as to the correctness of the fact. Later on Fischer⁴ has also made similar observations in South-Africa.

Hagen writes about this matter as follows: "While the inland Malays are prevailingly medium, and even long-skulled, but at the same time almost all short and broad-faced, the reverse is true among the mixed or Coast Malays; the head is shorter and the face longer. Both are often found in very pronounced degree. Here we have an absolutely typical appearance of crossing.

"Just where this very remarkable but quite characteristic elongation of the face of the Tamil-Malay cross of the second degree has its basis is a riddle which we at this moment cannot solve. The appearance is not confined to the Tamil-Malay cross, for we shall see it later in the Chinese-Malay cross. If we therefore find long faces suddenly appearing among the chamaeeprosopic, primitive Malayan peoples, the assumption of crossing is not entirely unreasonable. If we find associated with this long face a short, brachycephalic skull, the thought may become almost a certainty. I have tried to explain this remarkable occurrence thus: that the hereditary tendency of the original race elements was to ascertain degree stimulated to accelerated reaction as soon as through the foreign crossing element the reverted cross became predominant."

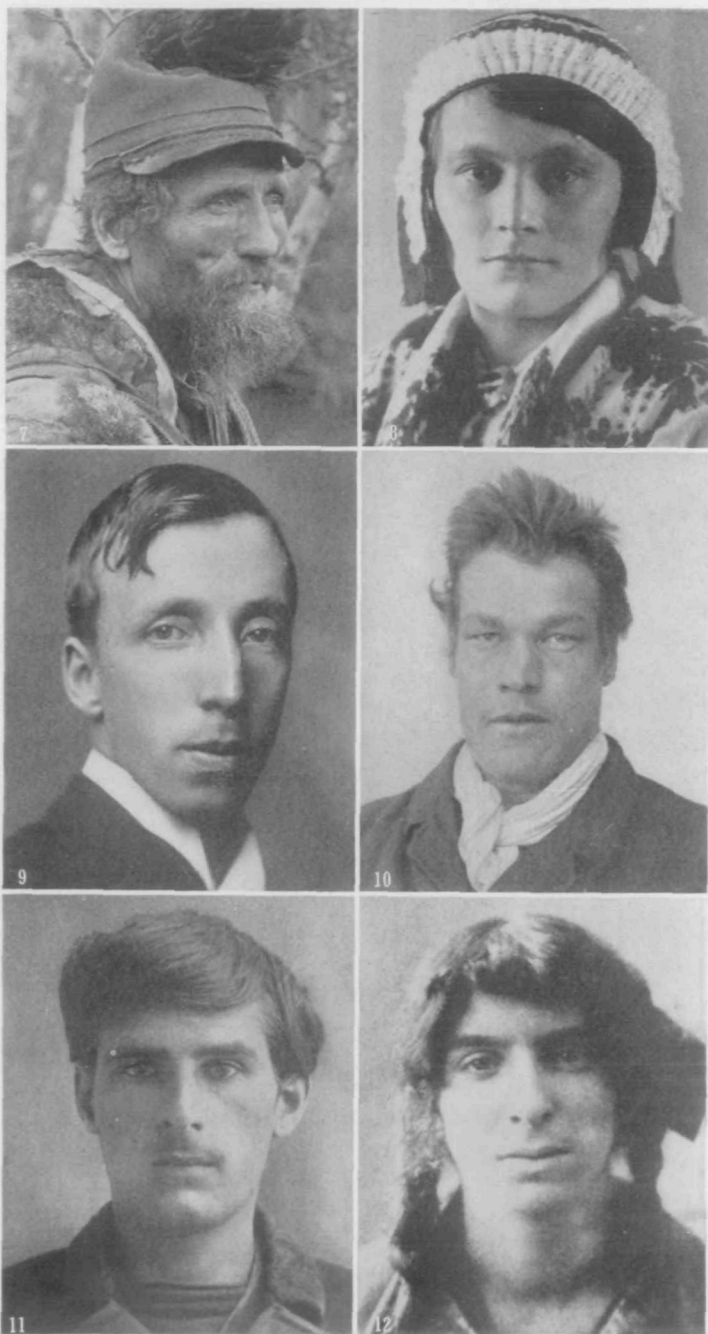
North-American full-blood Indians are like the Eskimos distinguished by a very great facial breadth. Boas⁵ in 1895 proved that the facial breadth decreases in crossing.

He states: "The fundamental difference between the white race and the Indian shows even in the earliest childhood, therefore one may not trace the narrow face of the whites and crosses to an earlier checking of growth processes, but one must see in it the effect of a different beginning.

³ B. Hagen, *Kopf- und Gesichtstypen ostasiasischer und melanesischer Völker*, Stuttgart, 1906.

⁴ E. Fischer, l. c.

⁵ Fr. Boas, *Zur Anthropologie der nordamerikanischen Indianer*. *Zeitschr. f. Ethnologie*. Bd. 27, p. 366.



TYPES OF RACIAL MIXTURE IN SWEDEN

The population of the far north of Sweden has originated largely from the race-mingling of Lapps, Finns, and Swedes. Nos. 7 and 8 above show types of the mixture of Lappic and Nordic blood. Nos. 9 and 10 show types of Swedish-Finnic crosses. No. 11 is a Swedish Vagabond with gipsy blood, and No. 12 is a race-mixed gipsy woman of Sweden (Fig. 29.)



RACIAL MIXTURES IN SWEDEN

The comparatively long faces observed among the racial hybrids in northern Sweden are also observed in other crosses between Swedes of the Nordic race type with other nationalities such as Jews, Walloons, and Gypsies. No. 13 in this illustration shows a Swede with Jewish blood; No. 14 a race-mixed Jew, a criminal, of Russian descent; No. 15 a Swedish Walloon with Nordic blood; No. 16 a race-mixed Swedish woman (tuberculous); Nos. 17 and 18 race-mixed Swedes, criminals. (Fig. 30.)



MIXED TYPES OF UNCIVILIZED PEOPLES

Racial crossings among uncivilized peoples in various parts of the world are illustrated by these types from North America, Asia, and Africa. Nos. 19 and 20 are race-mixed Indians of Mexico and the United States; Nos. 21 and 22 are hybrid types, Tamul-Malays, of Asia (according to Hagen); Nos. 23 and 24 are crosses between Boers and Hottentots in Africa (according to Fischer). (Fig. 31.)

"Upon surveying the collected data, one sees that in the very races which doubtless are purebred, the width of the face, in the middle hardly ever falls below 147 mm. It is therefore almost certain that where this measurement is not reached, there is a mixture of foreign blood.

This survey shows that especially the Cherokees, Trokesen, Micimac, Delaware, and Creek Indians are much mixed, since their face-widths fall below 143 mm—statements which may only be made concerning crosses with other races.

In Figures 29, 30, and 31 are representative facial types, originated by race-mingling in different parts of the world. The distinguishing quality of them all is a comparatively long face, of which especially the upper part is disproportionally drawn out.

The material is partly my own taken from the collections of the Race-biological Institution of Upsala, and partly gathered from American and German works.

It will, no doubt, prove to be a very interesting and significant task for race-biological research to penetrate deeper into these departments, and not only to study special individuals, but to investigate whole families and tribes, and to make exact measurements. In this way we shall, sooner or later, arrive at real knowledge of the innermost nature of such phenomena. It has to be determined, what is of

genotypical cause depending on the type of the germ-plasm), and what rôle environment plays. This is a department of research which undoubtedly promises significant conclusions.

Haecker, in a newly-issued work,⁶ energetically supports the significance of research of this kind. One ought to use all possible kinds of methods, even evolutionary-historical ones. He writes: "This new research work—historically developed characteristic or race analysis (Phanogenetik) investigates the origin of the outer characteristics of the perfected organisms morphologically and physiologically, and seeks to trace their roots step by step back over these active intermediate processes into the earliest possible stage of development.

"The investigation presents itself also as a specific chapter of mechanical and physiological development, and its object differs from the hitherto especially pursued aims of this science in that the new investigation has to do with a special method and race characteristics and does not go forward from the fertilized egg through the developing period but goes back from the finished outer characteristic, a procedure which in some respects reminds one of the methods of the prehistorian, paleontologist, and geologist."

Also Hammar⁷ of Uppsala has laid stress upon the importance for race-biology of embryological constitution research.

⁶ V. Haecker, *Entwicklungs geschichtliche Eigenschafts. analyse. (Phänogenetik.)* Jena, 1918.

⁷ J. A. Hammar, *Ueber Konstitutionsforschung in der normalen Anatomie.* Anat. Anz. 1916.

An Outline of Mental Disorders

MENTAL DISORDERS, briefly described and classified. By Charles B. Thompson, M. D., medical director of the Mental Hygiene Society of Maryland. Pp. 48, price 75 cts. Baltimore, Warwick and York, 1920.

Dr. Thompson's pamphlet offers

an intelligent outline and description of the various "insanities," which will be welcomed by interested laymen who find the terminology of this subject confusing. Its plan apparently did not include anything more than occasional incidental reference to heredity; and among "Means of Prevention" eugenics is not listed. P. P.